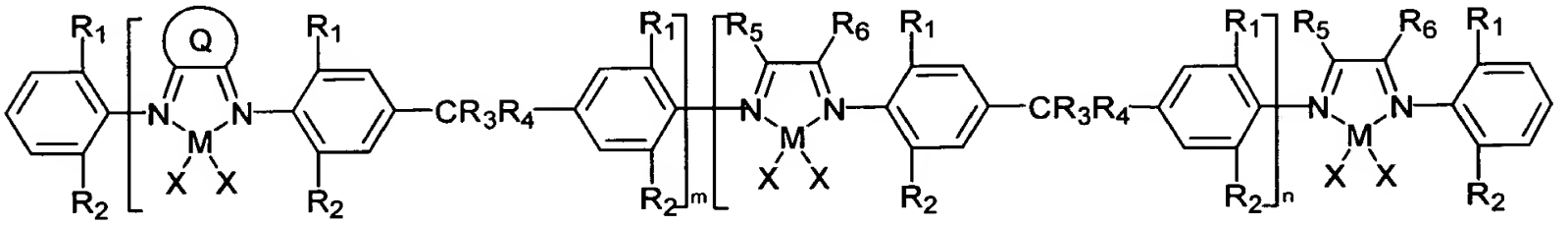
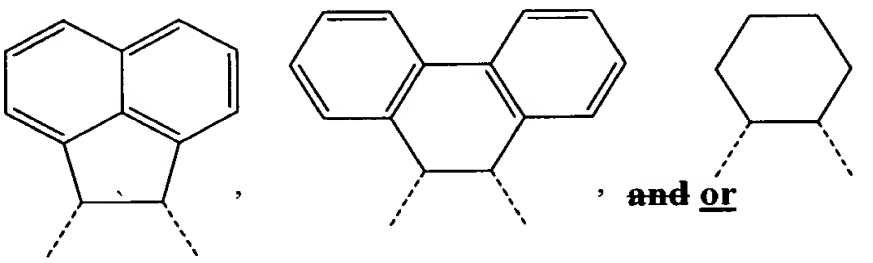
AMENDMENTS TO THE CLAIMS

1. (Currently Amended): A polynuclear α-diimine Ni(II) complex represented by the following formula:



wherein M is Ni; X is Cl or Br; m is an integer from 0 to 100, and n is an integer from 0 to 100; wherein at least one of m and n is not 0; R_1 and R_2 are the same or different, and are selected from the group consisting of H, methyl, ethyl, isopropyl and tert-butyl; wherein R_3 and R_4 are the same or different, and are selected from the group consisting of H, methyl, ethyl, propyl, butyl and phenyl, or R_3 and R_4 form a cyclic alkyl group; R_5 and R_6 are the same or different, and ~~is~~ **are** selected from the group consisting of methyl, ethyl, propyl and a heterocyclic group; and each Q is independently~~:~~ **;**



~~and~~ **or**

2. (Currently Amended): A polynuclear α-diimine Ni(II) complex of claim 1, wherein~~,~~ m is an integer from 1 to 100, and n is 0.

3. (Currently Amended): A polynuclear α-diimine Ni(II) complex of claim 1, wherein~~,~~ X is Br; m is an integer from 1 to 20, n is 0; R_1 is isopropyl, R_2 is methyl or isopropyl; and R_3 and R_4 are the same and are H or methyl, or R_3 and R_4 form a cyclohexyl group.

4. (Previously amended): A polynuclear α-diimine Ni(II) complex of claim 3, wherein m is an integer from 1 to 10.

5. (Previously amended): A polynuclear α-diimine Ni(II) complex of claim 1, wherein m is 0.

6. (Currently Amended): A polynuclear α-diimine Ni(II) complex of claim 1, wherein, X is Br; m is 0, n is an integer from 1 to 30; R_1 is isopropyl, R_2 is methyl or isopropyl; R_3 and R_4 are the same, and are H or methyl, or R_3 and R_4 form a cyclohexyl group; and R_5 and R_6 are methyl.

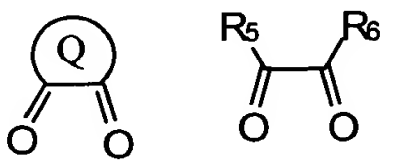
7. (Currently Amended): A polynuclear α-diimine Ni(II) complex of claim 1, wherein, X is Br; m is 0, n is an integer from 1 to 20; R_1 and R_2 are isopropyl; R_3 and R_4 are the same, and are H or methyl; and R_5 and R_6 are methyl.

8. (Currently Amended) A polynuclear α-diimine Ni(II) complex of claim 1, wherein, X is Br; m is an integer from 1 to 10, n is an integer from 1 to 20; R_1 is isopropyl, R_2 is methyl or isopropyl; R_3 and R_4 are the same, and are H or methyl, or R_3 and R_4 form a cyclohexyl group; and R_5 and R_6 are methyl.

9. (Currently Amended): A polynuclear α-diimine Ni(II) complex of claim 1, wherein, X is Br; m is an integer from 1 to 10, n is an integer from 1 to 20; R_1 and R_2 are methyl; R_3 and R_4 are the same, and are H or methyl; and R_5 and R_6 are methyl.

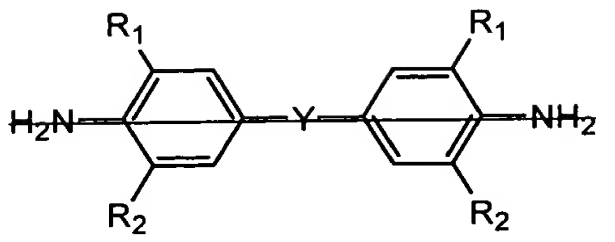
10. (Currently Amended): A method for the preparation of the polynuclear α-diimine Ni(II) complex of claim 1, comprising the steps of:

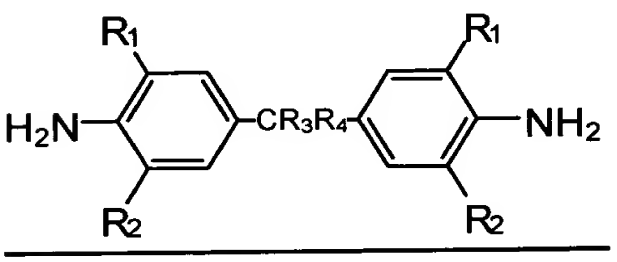
(a) condensing an α-diketone represented by the formula I, II or a mixture thereof,



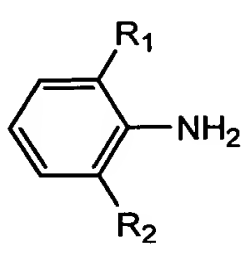
I II

a substituted aromatic diamine represented by the formula

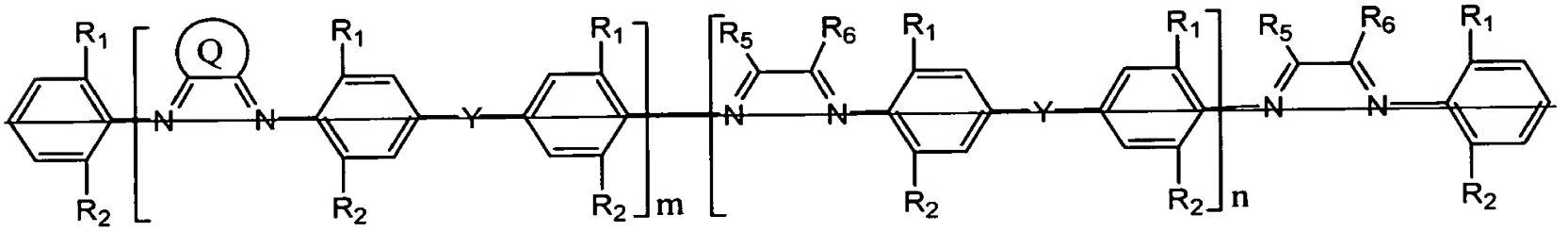


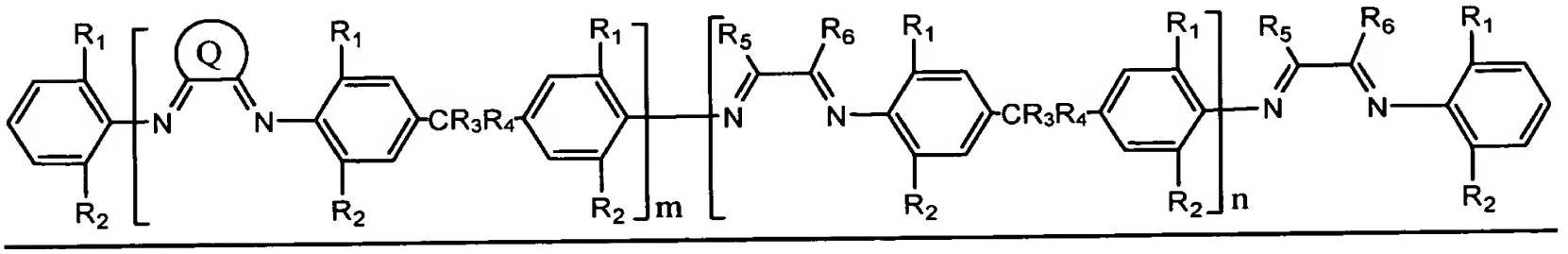


and a substituted aromatic amine represented by the formula

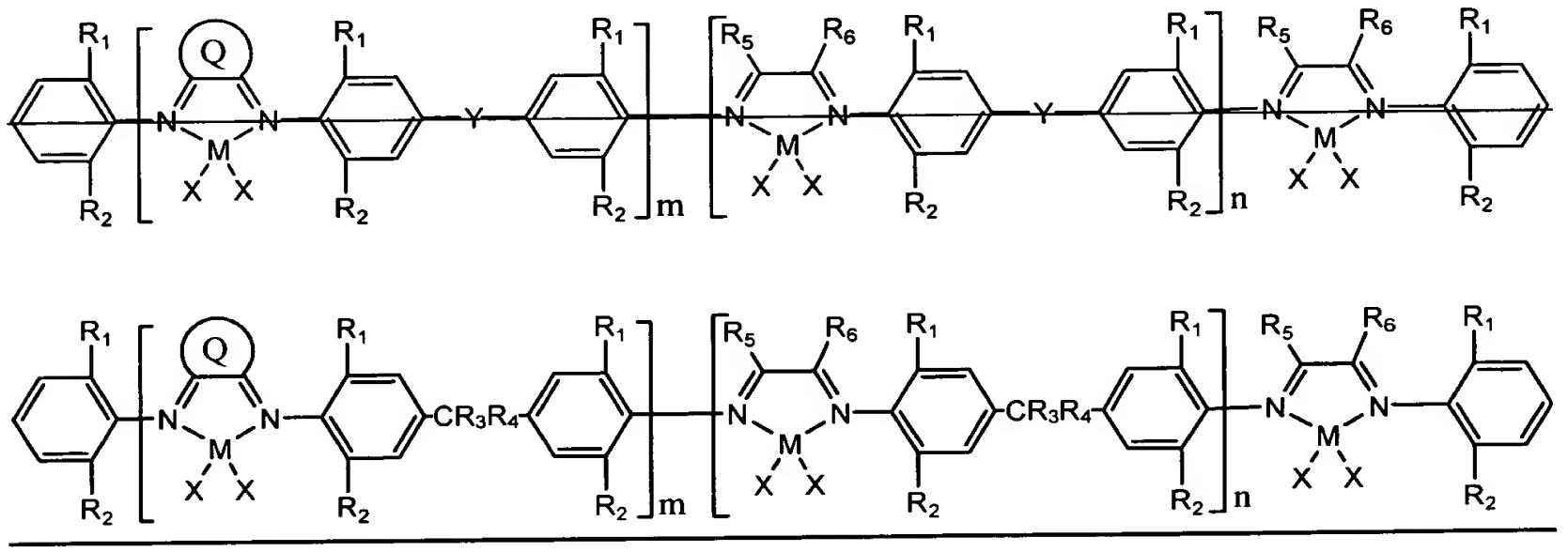


in a medium of alcohol, aromatic hydrocarbon, alcohol-ether mixture, or alcohol-halogenated hydrocarbon mixture and under the catalytic action of HCOOH, CF_3COOH, HF, HCl, HBr, or HI; thereby obtaining an oligomer of substituted α-diimine of the formula





(b) carrying out a coordination reaction of the oligomer of step (a) with NiX_2, in the absence of water and oxygen, thereby obtaining a polynuclear α-diimino Ni(II) complex of the following formula:



wherein, R_1, R_2, ~~R_2~~, R_3, R_4, R_5, R_6, Q, M, X, m and n are as defined in claim 1.

11. (Withdrawn) A method for preparing polyethylene, comprising the step of using the polynuclear α-diimine Ni(II) complex of claim 1 as the precursor of the catalyst.